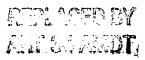
We claim:

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- A solid choline ascorbate formulation with reduced sensitivity to external stress
 factors
 - 2. A formulation as claimed in claim 1, wherein a solution of this formulation has under standard conditions
 - i) a Gardner color number (determined as specified in DIN-ISO 4630 or ASTM D 1544-80) of < 4.5, and/or
 - ii) a Hazen color number (determined as specified in DIN-ISO 6271 or ASTM D 1045-68, ASTM D 263-49 or ASTM D 1209-69) of < 800.
- 3. A formulation as claimed in claim 1 or 2, which does not deliquesce on storage under standard conditions in moist ambient air.
 - 4. A formulation as claimed in any of claims 1 to 3, wherein
 - a) choline ascorbate is surface-coated with an inert coating composition;
 - b) choline ascorbate is embedded in an inert matrix; or
 - c) a porous carrier is loaded with choline ascorbate, and the loaded carrier is surface-coated where appropriate with an inerticoating composition.
- A formulation as claimed in any of the preceding claims, which additionally comprises an effective amount of at least one addition which further reduces the tendency to
 discoloration of choline ascorbate.
 - 6. A formulation as claimed in claim 5, wherein the addition which further reduces the tendency to discoloration of choline ascorbate is mixed with the choline ascorbate and/or is present in the surface coating, in the inert matrix or in the porous carrier.
 - 7. A formulation as claimed in claim 5 or 6, wherein the stabilizer is present in a proportion of about 0.05 to 30 mol% based on the molar content of choline ascorbate.
- 8. A formulation as claimed in any of claims 5 to 7, wherein the stabilizer is selected from sulfur-containing, phosphorus-containing or boron-containing compounds, carboxylic acids and carboxylic acid derivatives; vitamins and vitamin precursors and



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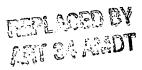
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derivatives; natural product mixtures; hydroxy- or alkoxyaromatic compounds; reductones or mixtures thereof.

- 9. A formulation as claimed in claim 8, wherein
 - the sulfur-containing stabilizer is selected from cysteine, cystine,
 N-acetylcysteine, thioglycolate, glutathione, dihydrolipoic acid, lipoic acid,
 sodium dithionite, methionine and thiourea;
 - the phosphorus-containing stabilizer is selected from phosphorous and hypophosphorous acid;
- 10 c) the boron-containing stabilizer is phenylboronic acid;
 - d) the carboxylic acids and carboxylic acid derivatives are selected from uric, lactic, malic, citric and excess ascorbic acid; and ascorbyl palmitate;
 - e) the vitamins, vitamin precursors and derivatives are selected from alpha-, beta- and gamma-tocopherol, tocotrienol and more water-soluble vitamin E derivatives; carotenoids; isoflavones; flavonoids and other naturally occurring polyphenols;
 - f) the natural product mixture is a rosemary extract;
 - g) the reductone is hydroxyacetone; and
 - h) the hydroxy- or alkoxy-aromatic compounds are selected from 6-ethoxy-1,2-dihydro-2,2,4-trimethylquinoline (ethoxyquin), t-butylhydroxytoluene and t-butylhydroxyanisole;

or the stabilizer is a functional derivative, having a stabilizing action, of one of the above compounds.

- 25 10. A formulation as claimed in any of the preceding claims, wherein the choline ascorbate content is in a range from about 5 to 95% by weight based on the total weight of the formulation.
- 11. A formulation as claimed in any of the preceding claims, which is coated with a coating composition comprising at least one compound selected from:
 - a) polyalkylene glycols;
 - polyalkylene oxide polymers or copolymers;
 - substituted polystyrenes, maleic acid derivatives and styrene/maleic acid copolymers;
- 35 d) vinyl polymers either alone or in combination with other compounds, such as cellulose ethers or starches;



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<u>.</u>		e)	vinylpyrrolidone/vinyl acetate copolymers;
		f)	polyvinyl alcohols, and polyphthalic acid vinyl esters;
		g)	hydroxypropylmethylcelluloses;
		h)	alkyl (meth)acrylate polymers and copolymers;
5		i)	polyvinyl acetates, where appropriate stabilized with polyvinylpyrrolidone;
		j)	polyalkylenes;
		k)	aromatic polymers;
		l)	polyacrylic acids;
		m)	polyacrylamides;
10		n)	polycyanoacrylates;
		0)	phenoxyacetic acid/formaldehyde resins;
		p)	cellulose derivatives;
		q)	animal, vegetable or synthetic fats and modified fats;
		r)	animal and vegetable waxes or chemically modified animal and vegetable
15			waxes;
		s)	animal and vegetable proteins;
		t)	mono- and disaccharides, oligosaccharides, polysaccharides;
		u)	vegetable oils, synthetic or semisynthetic oils and animal oils;
		v)	hardened (hydrogenated or partially hydrogenated) oils/fats;
20		w)	lacquer coatings;
		x)	fatty acids;
		y)	silicas;
25		or mixtures thereof.	
			mulation as claimed in any of claims 1 to 10, wherein the choline ascorbate is
30		embedded in a matrix which comprises at least one compound as defined in claim 11 which is suitable for forming a matrix which is solid at a temperature in the range from about 20 to 100°C.	
	13.	A formulation as claimed in any of claims 1 to 10, which comprises a porous carrier selected from silicates.	

14. A process for preparing a choline ascorbate-containing formulation as claimed in any of the preceding claims, which comprises solid choline ascorbate particles being coated by being



- sprayed in a fluidized bed with a melt, a solution or a dispersion of a coating a) composition as defined in claim 11, or subjected to a powder coating with the coating composition in a fluidized bed; or
- coated in a mixer with a melt, a solution or a dispersion of the coating b) composition, or subjected to a powder coating with the coating composition; or
- mixed with fat, and the fat being melted by mechanical energy input and/or c) heating, while mixing is continued;

and the coated material obtained in each case where appropriate being dried, cooled and/or freed of coarse fractions.

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A process for preparing a choline ascorbate-containing formulation as claimed in any 15. of claims 1 to 10, which comprises solid choline ascorbate particles being suspended in a melt comprising a (fusible) coating composition as defined in claim 11, and the suspension obtained in this way being dispersed and subsequently solidified.

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A process for preparing a choline ascorbate-containing formulation as claimed in any 16. of claims 1 to 10, which comprises solid choline ascorbate particles being dispersed in a lipophilic environment, the solid/oil droplets obtained in this way being emulsified in an aqueous phase, and the emulsion being spray-formulated.

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A process for preparing a choline ascorbate-containing formulation as claimed in any 17. of claims 1 to 10, which comprises choline ascorbate particles being coated by coacervation.

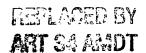
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A process for preparing a choline ascorbate-containing formulation as claimed in any 18. of claims 1 to 10, which comprises an aqueous protective colloid solution being prepared, choline ascorbate being dissolved or dispersed therein, and the resulting mixture subsequently being spray-formulated or spray-dried and subsequently coated where appropriate.

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A process for preparing a choline ascorbate-containing formulation as claimed in any 19. of claims 1 to 10, which comprises an aqueous choline ascorbate-containing solution being spray-dried in a fluidized bed and being granulated or agglomerated by addition of suitable additives.

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- 20. A process for preparing a choline ascorbate-containing formulation as claimed in any of claims 1 to 10, which comprises a solution, emulsion or suspension comprising choline ascorbate being mixed with a porous carrier and dried where appropriate; or a melt comprising choline ascorbate being applied to the porous carrier.
- A process for preparing a choline ascorbate-containing formulation as claimed in any of claims 1 to 10, which comprises wet granules comprising a choline ascorbate-containing solution or dispersion or a choline ascorbate-containing melt and a carrier, or comprising solid, crystalline or amorphous choline ascorbate, being prepared, the wet granules being extruded, where appropriate after-treated, dried and subsequently coated where appropriate.
 - 22. A process for preparing a choline ascorbate-containing formulation as claimed in any of claims 1 to 10, which comprises an aqueous solution of choline ascorbate being prepared, the latter being emulsified in a hydrophobic melt, and the emulsion being solidified.
- A process for preparing a choline ascorbate-containing formulation as claimed in any of claims 1 to 10, which comprises a melt comprising choline ascorbate being atomized where appropriate in the presence of a dusting agent in a stream of cold gas.
- 24. A human or animal food which, besides conventional ingredients of human or animal foods, comprises a choline ascorbate-containing formulation as defined in any of claims 1 to 13 in a proportion of about 0.001 to 50% by weight.
 - A human or animal food supplement which, besides conventional ingredients of human or animal food supplements, comprises a choline ascorbate-containing formulation as defined in any of claims 1 to 13 in a proportion of about 0.01 to 99.9% by weight.
 - 26. A pharmaceutical in solid, liquid or pasty form, which comprises in a pharmaceutically suitable carrier an effective amount of a choline ascorbate-containing formulation as claimed in any of claims 1 to 13.



27. The use of a choline ascorbate-containing formulation as claimed in any of claims 1 to 13 for preparing human and animal foods, and human and animal food supplements, or pharmaceuticals.

